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IDENTIFIER:  
TITLE: DETECTION OF FILM THICKNESS TO BE ETCHED, FILM  
THICKNESS DETECTOR, AND ETCHER  
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## INVENTOR-INFORMATION:

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## ABSTRACT:

PURPOSE: To enable high-precision detection of the thickness of a remainder of a film to be etched by irradiating a film to be etched with laser light to detect variation in light intensity caused by interference of light beams reflected from the bottom and top faces of the film.

CONSTITUTION: The periodical variation in light intensity is calculated by detection of variation in light intensity caused by interference of laser beams reflected from the bottom and top faces of a film to be etched W. Next, reference time t2 is made of a point of time when any of the maximum and minimum values of light intensity and the maximum and minimum values of variations with time of light intensity are reached. The thickness d1 of the film to be etched W at this reference time t2 is operated, and further etching amount  $\alpha t$  after the reference time t2 is determined. This process enables high-precision detection of the thickness D of a residual of a film to be etched W which is being etched.

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